ERI PROJECT MANUAL

CH. 7, WHRE-DT, VIRGINIA BEACH, VA

#21226A

CONTENTS:

ATW6V12-HSPX-7 TRASAR® ANTENNA TECHNICAL MANUAL

CUSTOM TRASAR MOUNT ASSEMBLY DRAWINGS

3-1/8" EIA 50 OHM TRANSMISSION LINE SYSTEM DRAWINGS

Electronics Research
7777 Gardner Road
Chandler, Indiana U.S.A. 47610

ERI TECHNICAL MANUAL

ATW6V12-HSPX-7 TRASAR® SIDE MOUNTED VHF ANTENNA

CH. 7, WHRE-DT, VIRGINIA BEACH, VA

#21226A

FINAL TECHNICAL MANUAL: 9 February 2009

Technical Manual #	Date
CH7 HSPX DTV STEEL	9 February 2009

Electronics Research
7777 Gardner Road
Chandler, Indiana U.S.A. 47610

TABLE 1-1

Electrical Specifications - DTV

Parameter	**Value**
Channel	7
Frequency Range	174-180 MHZ
Azimuth Pattern No.	H-Pol: CH7AZH
Elevation Pattern No.	H-Pol: CH7ELH
Azimuthal Directivity	H-Pol: 2.23 (3.49 dB)
Elevation Directivity	H-Pol: 6.00 (7.78dBd)
Gain at Horizontal	H-Pol: 9.89 (9.95 dBd)
Peak Power Gain	H-Pol: 13.40 (11.27 dbd)
Electrical Beam Tilt	3.00 degrees
Input Type	3-1/8" EIA 50 OHM
Maximum Input Power Rating	28 KW Average, 8VSB Digital
MAX VSWR	1.10 over 6 MHz channel

TABLE 1-2

Mechanical Specifications *

Parameter	**Value**
Antenna Height Including 3.5 ft. Lightning Spurs	43.62 ft.
Radiation Center above Antenna Base	20.06 ft.
Pipe Diameter & Radome	28. in. OD pipe with slot covers
Antenna Input Type	3-1/8" EIA 50 OHM
Pressurization (see note below)	Pressurized Radome not to exceed 5 PSIG
Measured Weight(No Ice):	6,900 lbs.
Ant. Area C_aA_C(Rev.F No Ice):	121.36 Sq. Ft.
Ant. Area C_aA_C(Rev.F 0.5" Ice):	130.53 Sq. Ft.

REV. F: Based on a wind speed of 95 MPH No Ice & 83 MPH with 0.50" radial ice with a height above ground level (HAGL) of 1014 ft. per EIA/TIA-222-F.

NOTE: The antenna is designed to be supported by a structure that can resist the antenna base reactions and provide a support that is rigid in the three translational and three rotational degrees of freedom.

NOTE: See Installation Drawings provided for further details.

NOTE: The antenna is designed to be pressurized with the option to operate unpressurized in the future if requested. This process can be completed easily by removing pipe plugs from the bottom plate & input adaptor elbow & a simple radome modification. Contact ERI to confirm the process before modifying the antenna. There is a gas barrier & a by pass valve assembly provided in the antenna input adaptor to allow for easy separation of the pressure if required. See Installation Drawings provided for further details.

INFORMATION

1.1.0 **INTRODUCTION**

1.1.1 This section provides drawings necessary for the proper installation and maintenance of the TRASAR® antenna.

1.1.2 Please contact ERI Technical Service at 812-925-6000, for further information.

Measured VSWR	
CH7AZH	Horizontal Azimuth Pattern & Tab Data
CH7ELH	Horizontal Elevation Pattern & Tab Data
LD21226A-1	Truck Removal/Lift Illustrations
PM21226A-1	Mechanical Parameters Drawings
21226A-A1	Tower Mount Installation Drawings
MACX350-7-VVA	Transmission Line System Layout Drawings

MEASURED VSWR

ATW6V12-HSPX-7 TRASAR® SIDE MOUNTED VHF ANTENNA

CH. 7, WHRE-DT, VIRGINIA BEACH, VA

#21226A

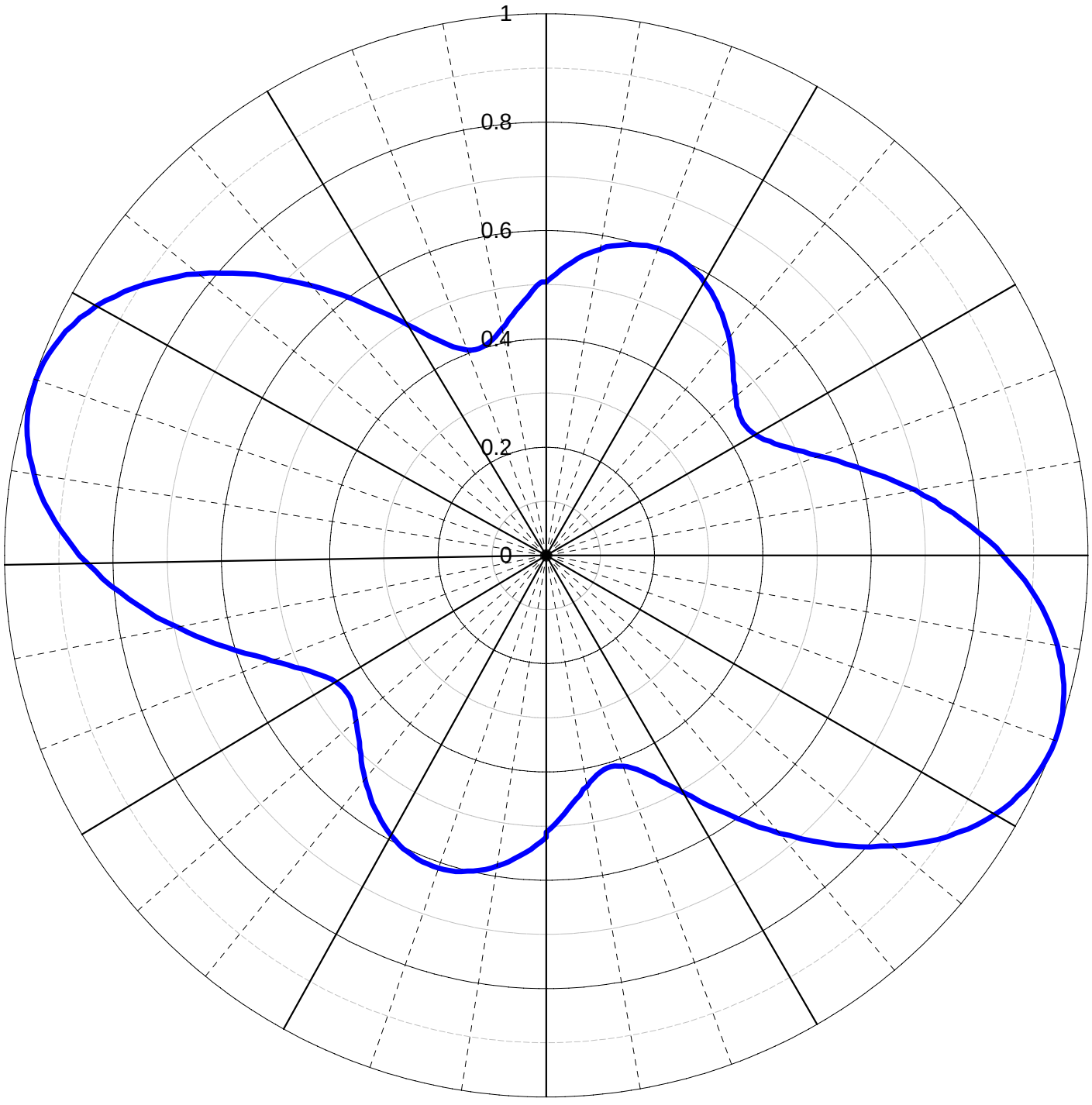
Final Slotted Line Measurements

CH7 – DTV

Frequency (MHZ)	VSWR
174.00	1.10
175.00	1.07
176.00	1.05
177.00	1.06
178.00	1.06
179.00	1.04
180.00	1.10

AZIMUTH PATTERN

TYPE:	CH7AZH	**Polarization:**	Horizontal
	Numeric dB	**Channel:**	7 (DTV)
Directivity:		**Location:**	Virginia Beach, VA



Note: Pattern shape and directivity may vary with channel and mounting configuration.

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Chandler, IN 47610

TABULATED DATA FOR AZIMUTH PATTERN

TYPE: CH7AZH

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
0	0.51	-5.93	90	0.84	-1.48	180	0.51	-5.83	270	0.85	-1.44
2	0.52	-5.68	92	0.87	-1.20	182	0.53	-5.54	272	0.87	-1.18
4	0.54	-5.41	94	0.90	-0.94	184	0.54	-5.29	274	0.90	-0.93
6	0.55	-5.18	96	0.92	-0.72	186	0.56	-5.08	276	0.92	-0.72
8	0.56	-4.99	98	0.94	-0.53	188	0.57	-4.88	278	0.94	-0.53
10	0.57	-4.82	100	0.96	-0.37	190	0.58	-4.72	280	0.96	-0.38
12	0.58	-4.67	102	0.97	-0.23	192	0.59	-4.56	282	0.97	-0.24
14	0.59	-4.57	104	0.98	-0.13	194	0.60	-4.46	284	0.98	-0.14
16	0.60	-4.48	106	0.99	-0.06	196	0.60	-4.37	286	0.99	-0.07
18	0.60	-4.42	108	1.00	-0.01	198	0.61	-4.31	288	1.00	-0.04
20	0.60	-4.38	110	1.00	0.00	200	0.61	-4.28	290	1.00	-0.03
22	0.60	-4.38	112	1.00	-0.02	202	0.61	-4.29	292	0.99	-0.05
24	0.60	-4.42	114	0.99	-0.07	204	0.61	-4.31	294	0.99	-0.11
26	0.60	-4.48	116	0.98	-0.14	206	0.60	-4.37	296	0.98	-0.19
28	0.59	-4.57	118	0.97	-0.24	208	0.60	-4.45	298	0.97	-0.30
30	0.58	-4.69	120	0.96	-0.39	210	0.59	-4.57	300	0.95	-0.45
32	0.57	-4.81	122	0.94	-0.55	212	0.58	-4.71	302	0.93	-0.64
34	0.56	-4.98	124	0.92	-0.77	214	0.57	-4.88	304	0.91	-0.85
36	0.55	-5.16	126	0.89	-0.98	216	0.56	-5.05	306	0.88	-1.10
38	0.54	-5.39	128	0.86	-1.26	218	0.55	-5.27	308	0.85	-1.37
40	0.52	-5.60	130	0.84	-1.57	220	0.53	-5.49	310	0.83	-1.67
42	0.51	-5.84	132	0.80	-1.89	222	0.52	-5.71	312	0.79	-2.00
44	0.50	-6.09	134	0.77	-2.25	224	0.50	-5.99	314	0.76	-2.36
46	0.48	-6.36	136	0.74	-2.64	226	0.49	-6.24	316	0.73	-2.74
48	0.47	-6.60	138	0.70	-3.04	228	0.48	-6.44	318	0.69	-3.19
50	0.46	-6.81	140	0.67	-3.48	230	0.47	-6.65	320	0.66	-3.60
52	0.45	-7.01	142	0.64	-3.93	232	0.46	-6.83	322	0.63	-4.07
54	0.44	-7.11	144	0.60	-4.43	234	0.45	-6.95	324	0.59	-4.55
56	0.44	-7.17	146	0.57	-4.93	236	0.45	-7.00	326	0.56	-5.08
58	0.44	-7.13	148	0.54	-5.41	238	0.45	-6.98	328	0.53	-5.56
60	0.45	-7.02	150	0.51	-5.93	240	0.45	-6.86	330	0.50	-6.08
62	0.46	-6.84	152	0.48	-6.38	242	0.46	-6.68	332	0.47	-6.55
64	0.47	-6.56	154	0.46	-6.82	244	0.48	-6.40	334	0.45	-6.97
66	0.49	-6.21	156	0.44	-7.18	246	0.50	-6.09	336	0.43	-7.34
68	0.51	-5.82	158	0.42	-7.46	248	0.52	-5.73	338	0.42	-7.62
70	0.54	-5.42	160	0.41	-7.65	250	0.54	-5.30	340	0.41	-7.83
72	0.57	-4.95	162	0.41	-7.76	252	0.57	-4.91	342	0.40	-7.91
74	0.59	-4.52	164	0.41	-7.78	254	0.60	-4.44	344	0.40	-7.90
76	0.63	-4.07	166	0.41	-7.69	256	0.63	-3.99	346	0.41	-7.81
78	0.66	-3.64	168	0.42	-7.52	258	0.66	-3.57	348	0.41	-7.64
80	0.69	-3.19	170	0.43	-7.27	260	0.69	-3.18	350	0.43	-7.40
82	0.72	-2.80	172	0.45	-6.99	262	0.73	-2.74	352	0.44	-7.10
84	0.76	-2.44	174	0.46	-6.72	264	0.76	-2.41	354	0.46	-6.81
86	0.78	-2.11	176	0.48	-6.40	266	0.79	-2.06	356	0.47	-6.52
88	0.82	-1.77	178	0.50	-6.10	268	0.82	-1.72	358	0.49	-6.22

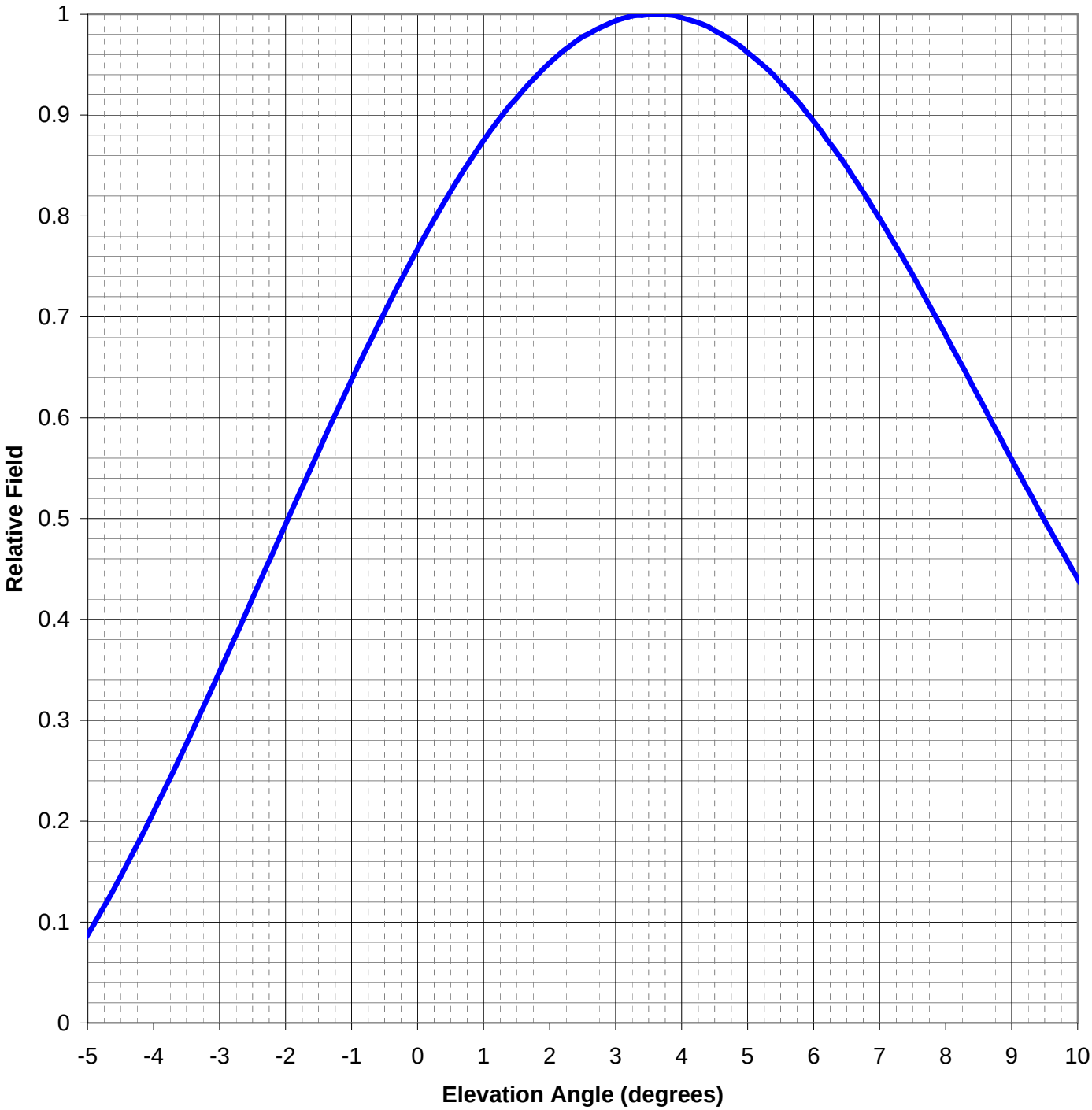
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Chandler, IN 47610

ELEVATION PATTERN

TYPE:	CH7ELH	**Beam Tilt:**	
Directivity:	Numeric dBd	**Polarization:**	Horizontal
Main Lobe:		**Channel:**	7 (DTV)
Horizontal:		**Location:**	Virginia Beach, VA



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TABULATED DATA FOR ELEVATION PATTERN

TYPE: CH7ELH

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
-5.00	0.09	-21.19	-0.50	0.70	-3.04	2.00	0.95	-0.43	6.50	0.85	-1.42
-4.90	0.10	-20.15	-0.40	0.72	-2.88	2.10	0.96	-0.38	6.60	0.84	-1.53
-4.80	0.11	-19.21	-0.30	0.73	-2.73	2.20	0.96	-0.33	6.70	0.83	-1.63
-4.70	0.12	-18.34	-0.20	0.74	-2.58	2.30	0.97	-0.28	6.80	0.82	-1.74
-4.60	0.13	-17.52	-0.10	0.76	-2.44	2.40	0.97	-0.24	6.90	0.81	-1.85
-4.50	0.15	-16.77	0.00	0.77	-2.30	2.50	0.98	-0.20	7.00	0.80	-1.97
-4.40	0.16	-16.05	0.05	0.77	-2.30	2.60	0.98	-0.17	7.10	0.79	-2.08
-4.30	0.17	-15.39	0.10	0.78	-2.17	2.70	0.98	-0.14	7.20	0.78	-2.21
-4.20	0.18	-14.76	0.15	0.78	-2.17	2.80	0.99	-0.11	7.30	0.76	-2.34
-4.10	0.20	-14.16	0.20	0.79	-2.04	2.90	0.99	-0.08	7.40	0.75	-2.46
-4.00	0.21	-13.60	0.25	0.79	-2.04	3.00	0.99	-0.06	7.50	0.74	-2.59
-3.90	0.22	-13.06	0.30	0.80	-1.91	3.10	1.00	-0.04	7.60	0.73	-2.74
-3.80	0.24	-12.55	0.35	0.80	-1.91	3.20	1.00	-0.02	7.70	0.72	-2.88
-3.70	0.25	-12.06	0.40	0.81	-1.79	3.30	1.00	-0.01	7.80	0.71	-3.03
-3.60	0.26	-11.59	0.45	0.81	-1.79	3.40	1.00	-0.01	7.90	0.69	-3.17
-3.50	0.28	-11.15	0.50	0.82	-1.68	3.50	1.00	0.00	8.00	0.68	-3.32
-3.40	0.29	-10.72	0.55	0.82	-1.68	3.60	1.00	0.00	8.10	0.67	-3.48
-3.30	0.31	-10.30	0.60	0.83	-1.57	3.70	1.00	0.00	8.20	0.66	-3.64
-3.20	0.32	-9.91	0.65	0.83	-1.57	3.80	1.00	0.00	8.30	0.65	-3.80
-3.10	0.33	-9.53	0.70	0.85	-1.46	3.90	1.00	-0.01	8.40	0.63	-3.98
-3.00	0.35	-9.16	0.75	0.85	-1.46	4.00	1.00	-0.03	8.50	0.62	-4.14
-2.90	0.36	-8.81	0.80	0.86	-1.36	4.10	0.99	-0.05	8.60	0.61	-4.32
-2.80	0.38	-8.47	0.85	0.86	-1.36	4.20	0.99	-0.06	8.70	0.60	-4.50
-2.70	0.39	-8.14	0.90	0.87	-1.26	4.30	0.99	-0.08	8.80	0.58	-4.68
-2.60	0.41	-7.82	0.95	0.87	-1.26	4.40	0.99	-0.11	8.90	0.57	-4.87
-2.50	0.42	-7.51	1.00	0.87	-1.16	4.50	0.98	-0.14	9.00	0.56	-5.06
-2.40	0.44	-7.21	1.05	0.87	-1.16	4.60	0.98	-0.17	9.10	0.55	-5.25
-2.30	0.45	-6.93	1.10	0.88	-1.07	4.70	0.98	-0.21	9.20	0.53	-5.45
-2.20	0.47	-6.65	1.15	0.88	-1.07	4.80	0.97	-0.24	9.30	0.52	-5.64
-2.10	0.48	-6.38	1.20	0.89	-0.98	4.90	0.97	-0.28	9.40	0.51	-5.85
-2.00	0.49	-6.12	1.25	0.89	-0.98	5.00	0.96	-0.34	9.50	0.50	-6.05
-1.90	0.51	-5.87	1.30	0.90	-0.90	5.10	0.96	-0.38	9.60	0.49	-6.26
-1.80	0.52	-5.62	1.35	0.90	-0.90	5.20	0.95	-0.43	9.70	0.47	-6.48
-1.70	0.54	-5.39	1.40	0.91	-0.82	5.30	0.95	-0.49	9.80	0.46	-6.68
-1.60	0.55	-5.16	1.45	0.91	-0.82	5.40	0.94	-0.54	9.90	0.45	-6.91
-1.50	0.57	-4.93	1.50	0.92	-0.75	5.50	0.93	-0.61	10.00	0.44	-7.12
-1.40	0.58	-4.71	1.55	0.92	-0.75	5.60	0.93	-0.68			
-1.30	0.60	-4.50	1.60	0.92	-0.68	5.70	0.92	-0.74			
-1.20	0.61	-4.30	1.65	0.92	-0.68	5.80	0.91	-0.81			
-1.10	0.62	-4.10	1.70	0.93	-0.61	5.90	0.90	-0.90			
-1.00	0.64	-3.91	1.75	0.93	-0.61	6.00	0.89	-0.97			
-0.90	0.65	-3.72	1.80	0.94	-0.55	6.10	0.89	-1.05			
-0.80	0.66	-3.55	1.85	0.94	-0.55	6.20	0.88	-1.15			
-0.70	0.68	-3.37	1.90	0.95	-0.49	6.30	0.87	-1.24			
-0.60	0.69	-3.20	1.95	0.95	-0.49	6.40	0.86	-1.33			

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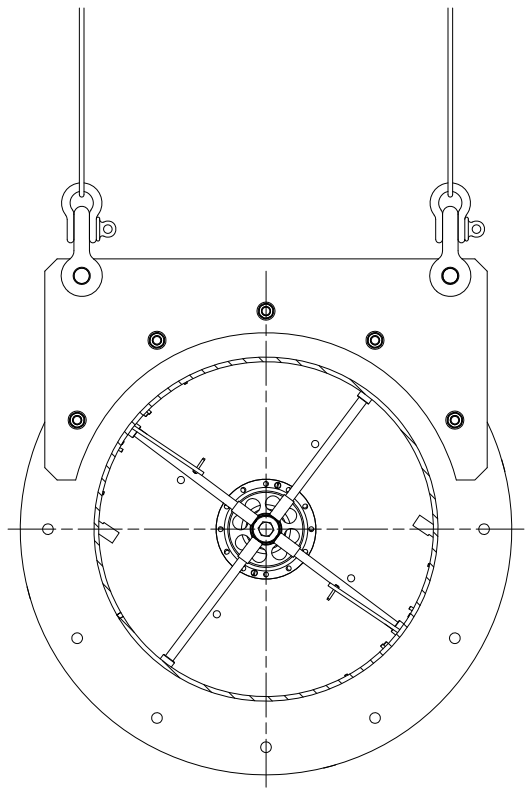
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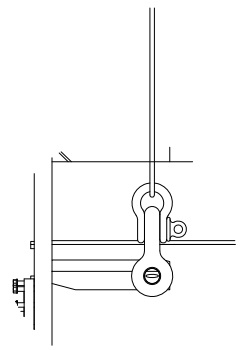
REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

FIGURE #1
REMOVAL FROM TRUCK

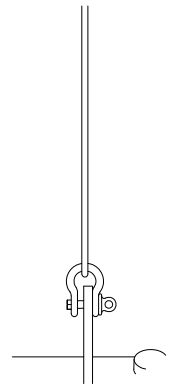
LIFT ANTENNA FROM THE TRUCK BED USING THE STEEL SUPPORT PLATE, 2nd FROM THE TOP & MAIN LIFTING LUGS AT BASE, NOT THE RADOMES, AT THE LOCATIONS INDICATED. TO PREVENT FROM ROLLING, LIFT FROM THE CENTER PLATE AS SHOWN IN VIEW "A–A". DO NOT LIFT ANTENNA BY FIBERGLASS RADOMES, DAMAGE WILL OCCUR.



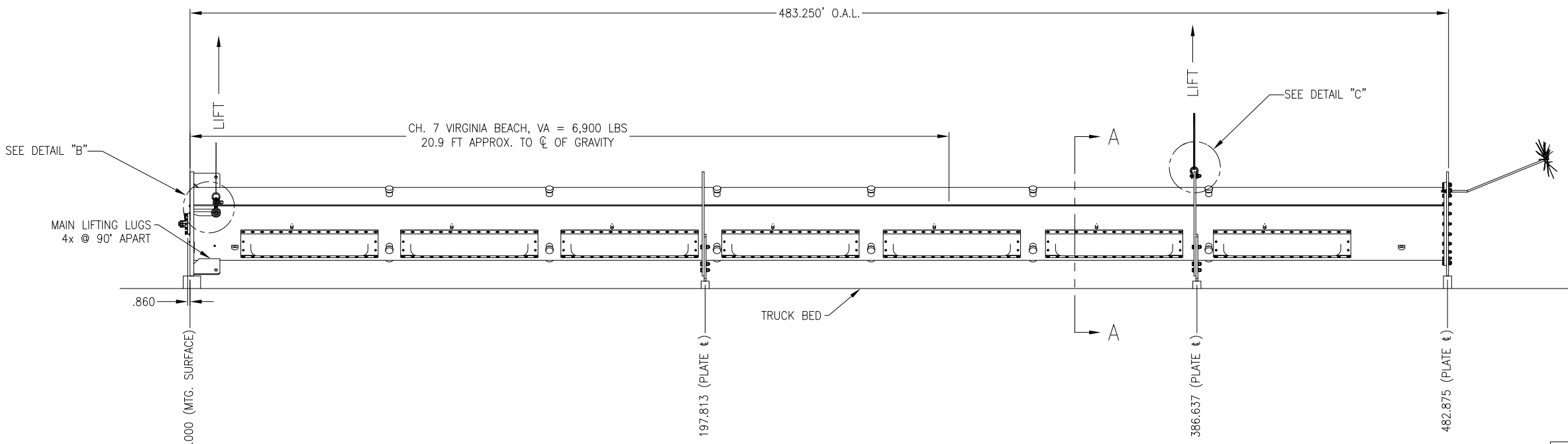
SECTION A–A



DETAIL B



DETAIL C



QTY.	UM	PART NO.	DESCRIPTION	ITEM NO.

PARTS LIST

MFG PROCESSES	INSPECTION PROCEDURES	TEST PROCEDURES
–	–	–
–	–	–

FINISH: –
MATERIAL: --
ALL SURFACES

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES.
1 PLACE DECIMALS ± .100
2 PLACE DECIMALS ± .030
3 PLACE DECIMALS ± .010
ANGLE ± .5°
UNLESS OTHERWISE SPECIFIED

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DRAWN BY	MAP	09/1/8
DRAFT.		
DESIGN MGR.		
ENG.	K. SCHARP	09/02/10
MANUF.		
SUPERSEDES DWG.		

ELECTRONICS RESEARCH, INC.
Established 1943
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LIFTING DETAIL
JOB #21226A/1 – WHRE, VIRGINIA BEACH, VA – CH. 7

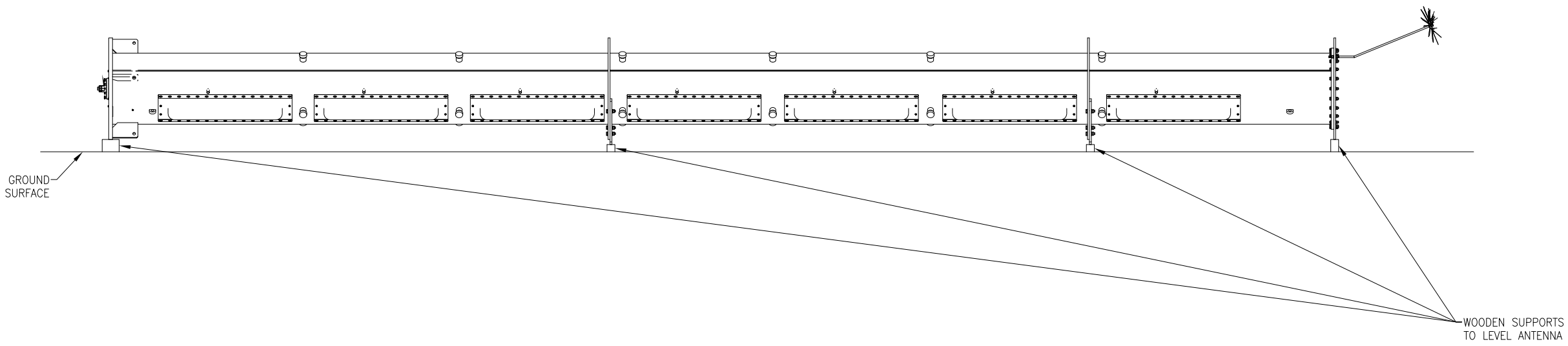
SIZE	CAGE CODE	DWG NO.	REV
D	0ZNS1	LD21226A–1	–

SCALE 1:25 | FILE NO. LD21226A–1 | SHEET 1 OF 4

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

FIGURE #2

PLACE ALL ANTENNA RADOME JOINTS WITH STEEL CENTER PLATES ON WOODEN SUPPORTS AS SHOWN. ANTENNA SHOULD BE LEVEL TO PREVENT DAMAGE. USE SUPPORTS HIGH ENOUGH TO AVOID DAMAGING THE RADOMES AND TO ALLOW FOR ELECTRICAL GROUND TEST OF THE ANTENNA. PLATE RESTING 6.0 INCHES ABOVE THE GOUND IS SUFFICIENT.



QTY.	UM	PART NO.	DESCRIPTION	ITEM NO.

PARTS LIST

MFG PROCESSES	INSPECTION PROCEDURES	TEST PROCEDURES
—	—	—
—	—	—

THIRD ANGLE PROJECTION

FINISH —

ALL SURFACES

MATERIAL --

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES.
TOLERANCES
1 PLACE DECIMALS ± .100
2 PLACE DECIMALS ± .030
3 PLACE DECIMALS ± .010
ANGLE ± .5°
UNLESS OTHERWISE SPECIFIED

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DRAWN BY	MAP	09/1/8
DRAFT.		
DESIGN MGR.		
ENG.	K. SCHARP	09/02/10
MANUF.		
SUPERSEDES DWG.		

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LIFTING DETAIL
JOB #21226A/1 – WHRE, VIRGINIA BEACH, VA – CH. 7

SIZE	CAGE CODE	DWG NO.	REV
D	0ZNS1	LD21226A-1	—

SCALE 1:25 | FILE NO. LD21226A-1 | SHEET 2 OF 4

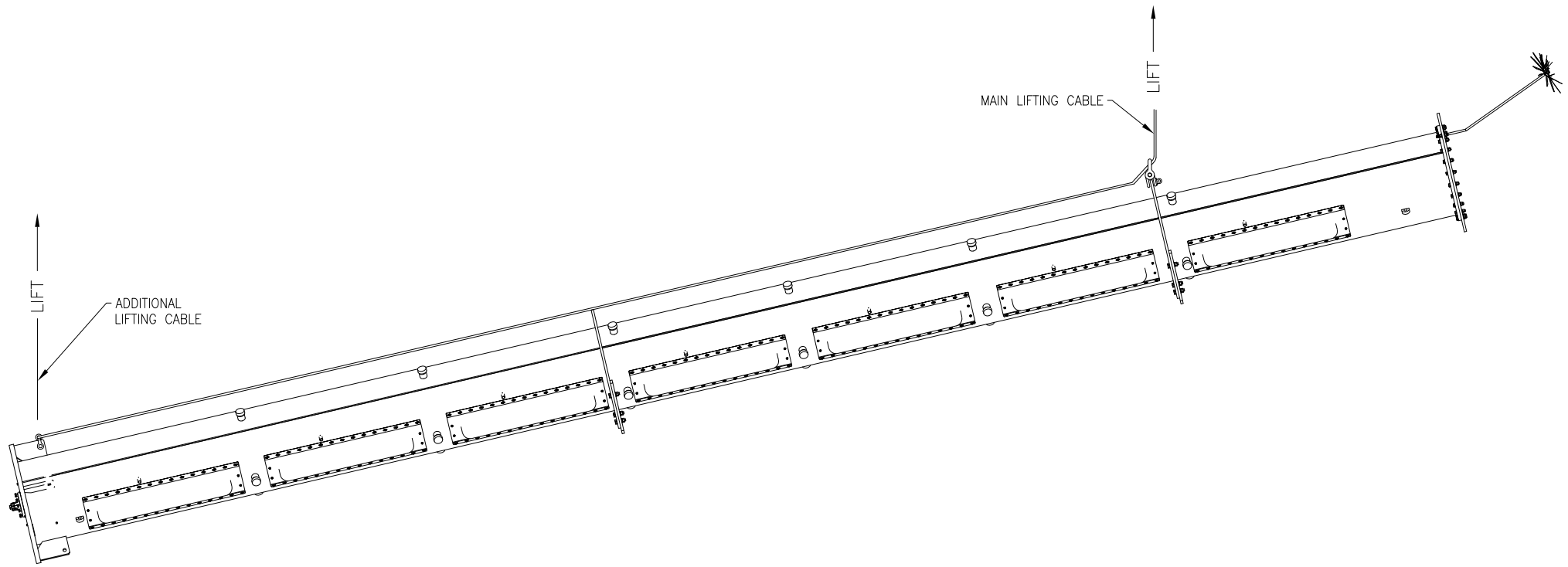
REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

FIGURE #3A

WHEN LIFTING THE ANTENNA FOR INSTALLATION, LIFT AS SHOWN TO PREVENT DAMAGE TO THE BASE OF THE ANTENNA. WHEN THE ANTENNA IS VERTICAL, THE ADDITIONAL BASE LIFTING CABLE CAN BE REMOVED (SEE FIGURE 3B).

NOTE:

THIS ILLUSTRATION IS INTENDED TO SHOW A CONCEPT FOR LIFTING THE ERI INC. TRASAR ANTENNA TO PREVENT DAMAGE TO THE ANTENNA AND THE RADOMES. SAFE AND PROPER IMPLEMENTATION OF THIS CONCEPT ARE THE RESPONSIBILITY OF THE INSTALLER.



QTY.	UM	PART NO.	DESCRIPTION	ITEM NO.

PARTS LIST

MFG PROCESSES	INSPECTION PROCEDURES	TEST PROCEDURES
–	–	–
–	–	–

THIRD ANGLE PROJECTION

FINISH: –
MATERIAL: --
ALL SURFACES

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES.
TOLERANCES
1 PLACE DECIMALS ± .100
2 PLACE DECIMALS ± .030
3 PLACE DECIMALS ± .010
ANGLE ± .5°
UNLESS OTHERWISE SPECIFIED

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ENG.	K. SCHARP	09/02/10
MANUF.		
SUPERSEDES DWG.		

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LIFTING DETAIL
JOB #21226A/1 – WHRE, VIRGINIA BEACH, VA – CH. 7

SIZE	CAGE CODE	DWG NO.	REV
D	0ZNS1	LD21226A-1	–

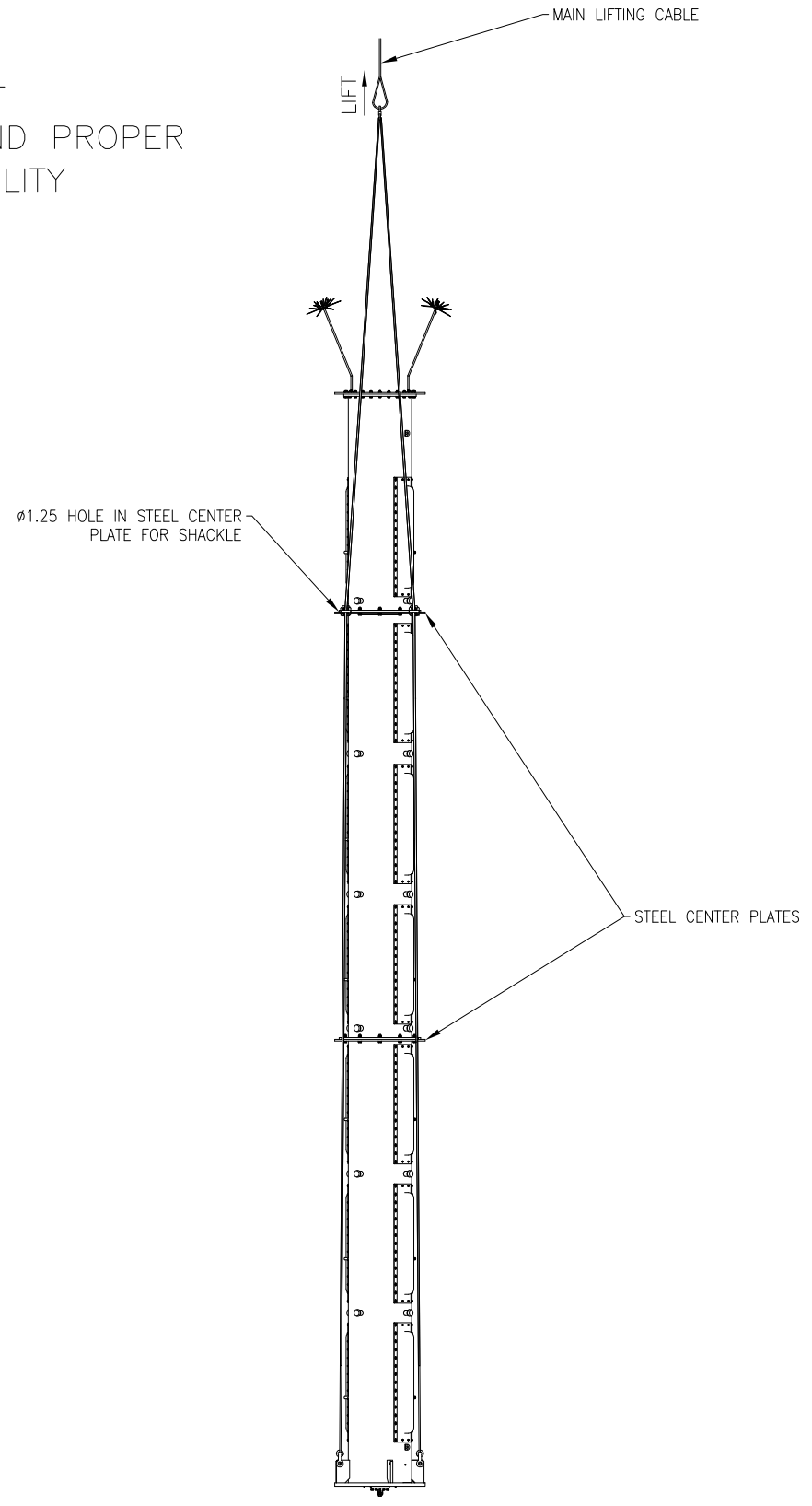
SCALE 1:25 | FILE NO. LD21226A-1 | SHEET 3 OF 4

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

FIGURE #3B

NOTE:

THIS ILLUSTRATION IS INTENDED TO SHOW A CONCEPT FOR LIFTING THE ERI INC. TRASAR ANTENNA TO PREVENT DAMAGE TO THE ANTENNA AND THE RADOMES. SAFE AND PROPER IMPLEMENTATION OF THIS CONCEPT ARE THE RESPONSIBILITY OF THE INSTALLER.



QTY.	UM	PART NO.	DESCRIPTION	ITEM NO.

PARTS LIST

MFG PROCESSES	INSPECTION PROCEDURES	TEST PROCEDURES
–	–	–
–	–	–

THIRD ANGLE PROJECTION

FINISH: –
MATERIAL: --
ALL SURFACES

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES.
TOLERANCES
1 PLACE DECIMALS ± .100
2 PLACE DECIMALS ± .030
3 PLACE DECIMALS ± .010
ANGLE ± .5'
UNLESS OTHERWISE SPECIFIED

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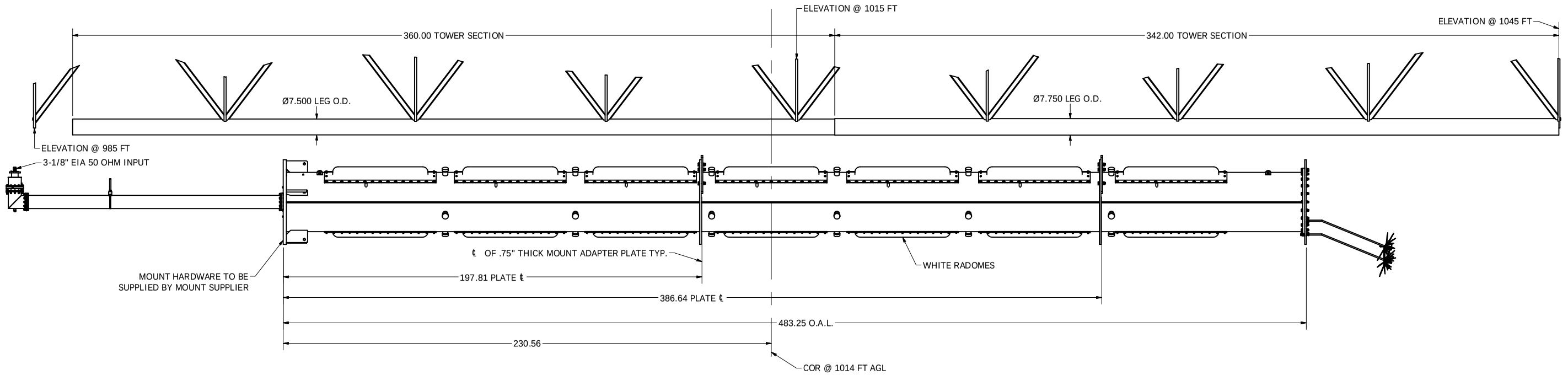
LIFTING DETAIL
JOB #21226A/1 – WHRE, VIRGINIA BEACH, VA – CH. 7

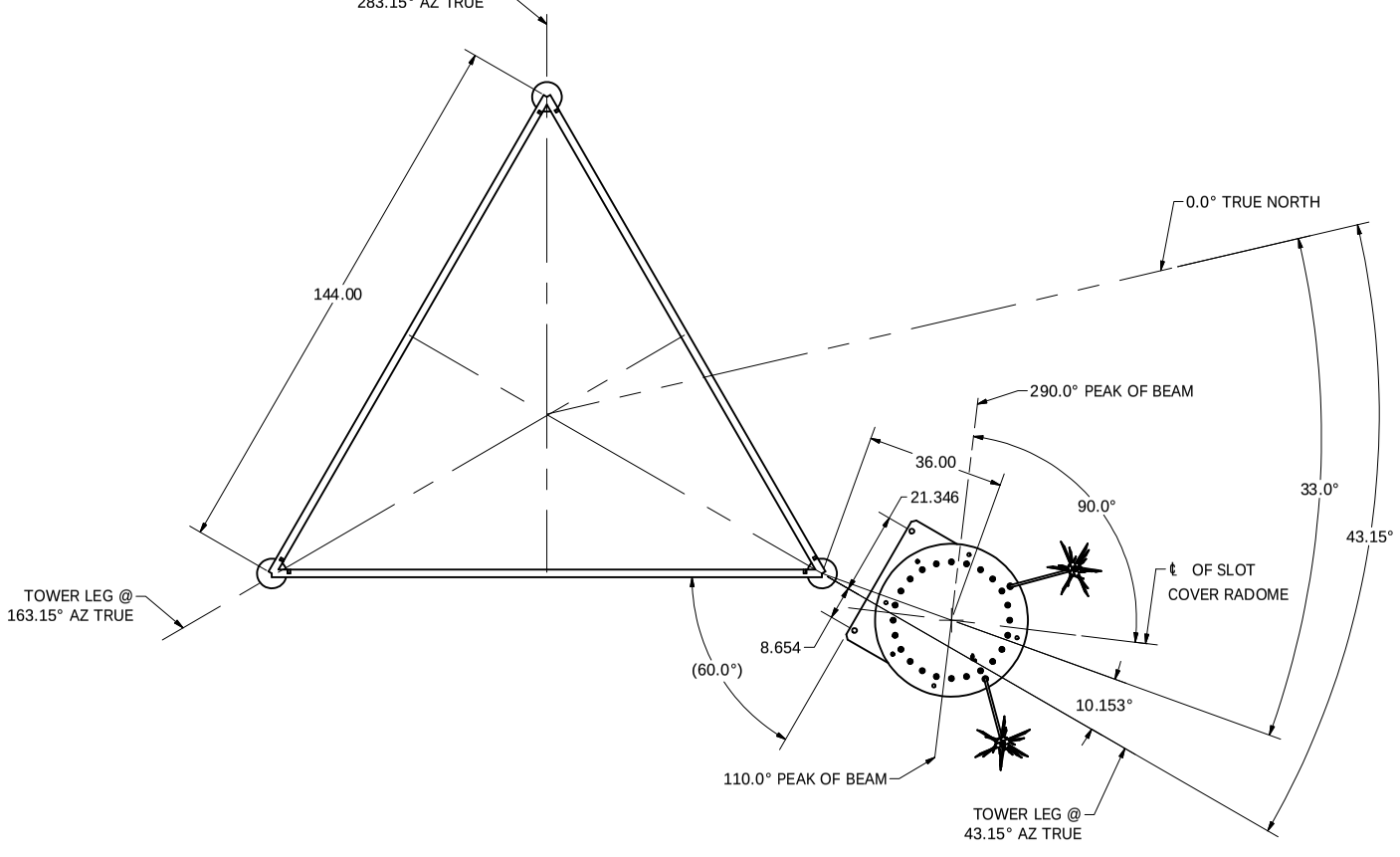
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SCALE 1:40 | FILE NO. LD21226A-1 | SHEET 4 OF 4

WEIGHT: LB.

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	REVISED MOUNTING LOCATION, WAS FACE MOUNTED	8/1/2009	K.SCHARP





SPECIFICATIONS		
MFG	INSPECTION	TEST
—	—	—
—	—	—

CERTIFIED STEEL FABRICATOR

THIRD ANGLE PROJECTION

FINISH —

MATERIAL —

ALL SURFACES — —

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES.
TOLERANCES:
1 PLACE DECIMALS ± .1
2 PLACE DECIMALS ± .03
3 PLACE DECIMALS ± .010
ANGLE ± .5'
FRACTIONAL ± 1/64"
UNLESS OTHERWISE SPECIFIED

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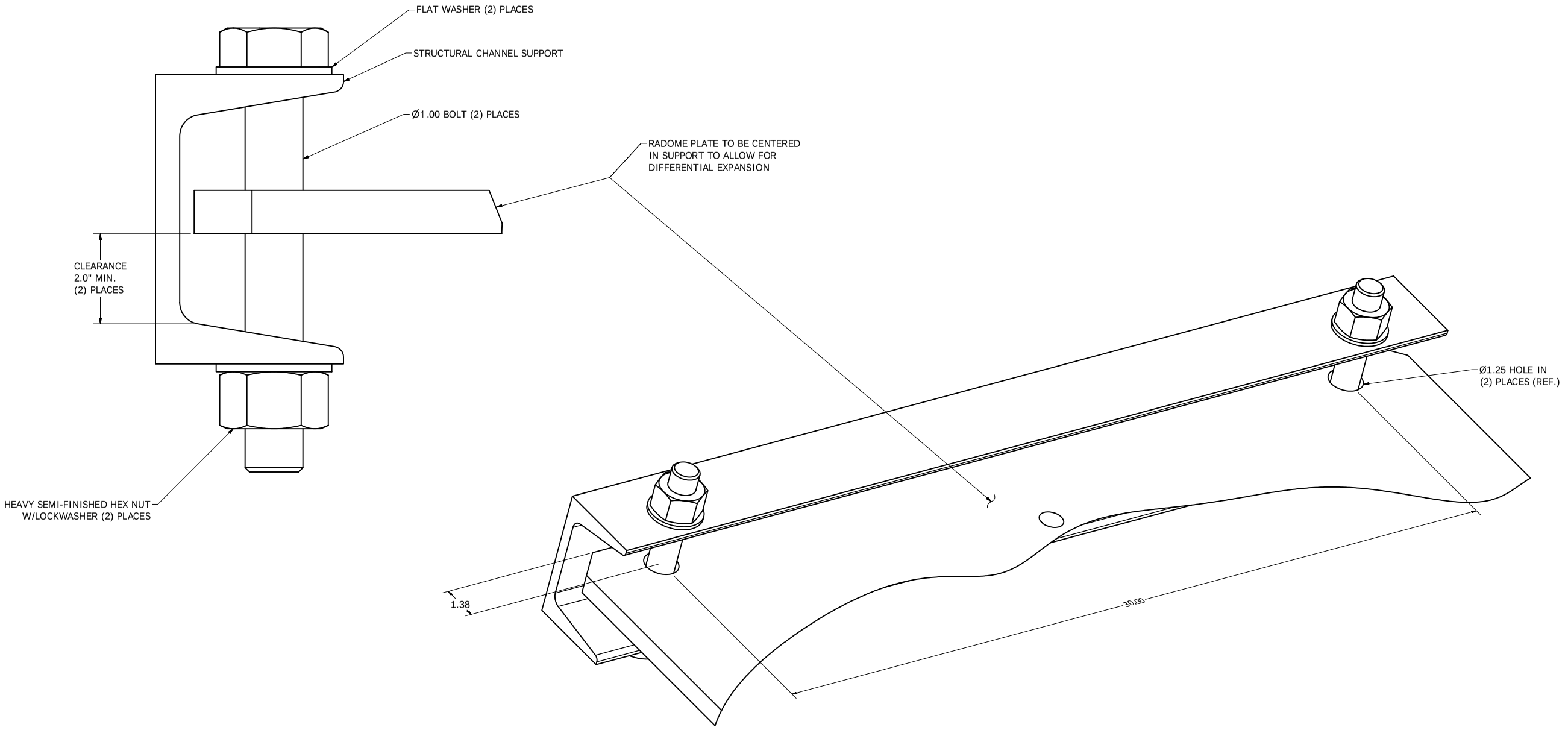
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PARAMETERS MECHANICAL
21226A - VIRGINIA BEACH, VA CH. 7

SIZE	CAGE CODE	DWG NO.	REV
D	0ZNS1	PM21226A-1	A

SCALE N.T.S. FILE NO. PM21226A-1.1.DWG SHEET 1 OF 4

WEIGHT: LB.	REVISIONS				
	ZONE	REV	DESCRIPTION	DATE	APPROVED



NOTE: POSSIBLE MOUNTING FOR CENTER MOUNTING PLATES TO HORIZONTAL SUPPORTS

CERTIFIED STEEL FABRICATOR

SPECIFICATIONS		
MFG	INSPECTION	TEST
—	—	—
—	—	—

THIRD ANGLE PROJECTION

FINISH: — — ALL SURFACES — —

MATERIAL: — — — —

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES.
TOLERANCES
1 PLACE DECIMALS ± .1
2 PLACE DECIMALS ± .03
3 PLACE DECIMALS ± .010
ANGLE ± .5°
FRACTIONAL ± 1/64"
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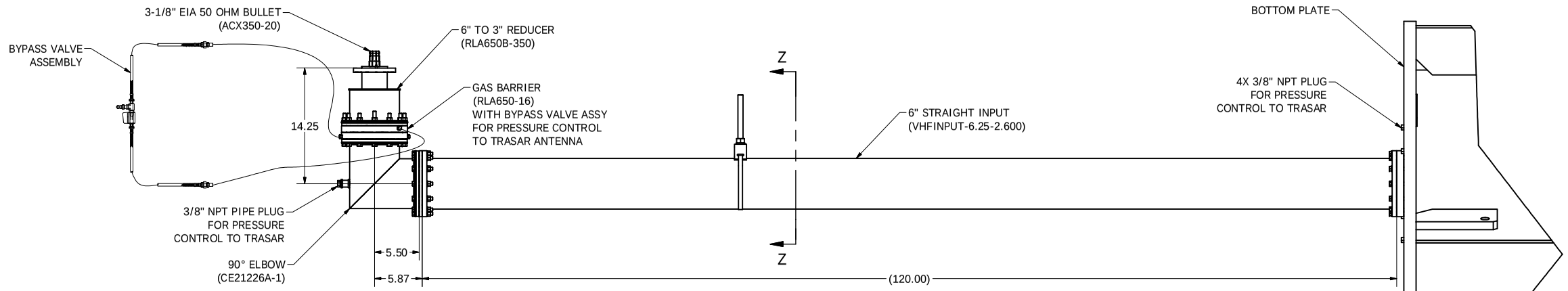
PARAMETERS MECHANICAL
21226A - VIRGINIA BEACH, VA - CH. 7

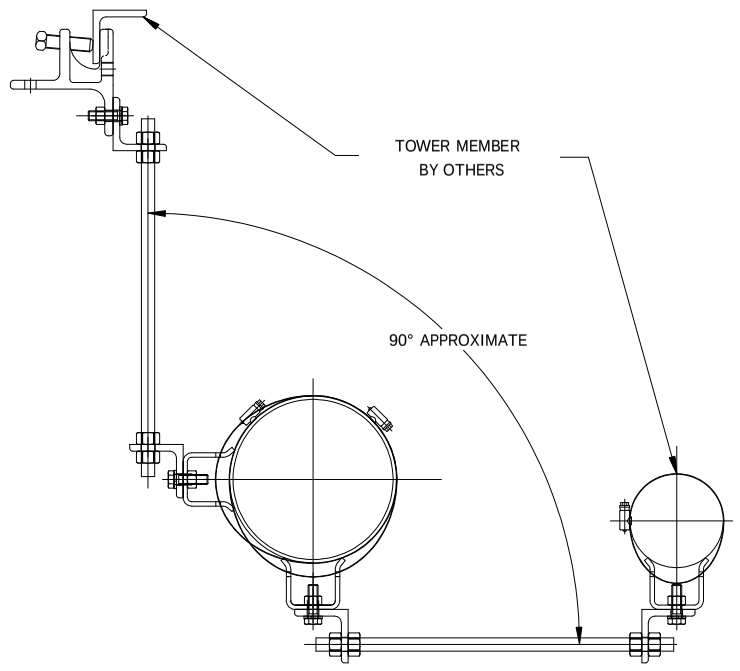
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SCALE	FILE NO.	SHEET
NTS	PM21226A-1.2.DWG	2 OF 4

NOTES: (UNLESS OTHERWISE SPECIFIED)
1. REMOVE ALL BURRS AND SHARP EDGES FROM PART.
2. INTERPRET DRAWING PER ASME Y14.5M-1994.
3. USE TOLERANCES SPECIFIED IN TOLERANCE BLOCK UNLESS OTHERWISE NOTED.

WEIGHT: LB.	REVISIONS				
	ZONE	REV	DESCRIPTION	DATE	APPROVED





SECTION Z-Z
BOTH SUPPORTS MUST BE INSTALLED
THE COMPONENTS SUPPLIED ALLOW FOR
EASY ATTACHMENT TO AN ANGLE/FLAT
PIECE OF STEEL OR TO A ROUND AS SHOWN.

CERTIFIED STEEL FABRICATOR

SPECIFICATIONS		
MFG	INSPECTION	TEST
—	—	—
—	—	—

THIRD ANGLE PROJECTION

FINISH — — ALL SURFACES — —
MATERIAL — — — —

UNLESS OTHERWISE SPECIFIED,
ALL DIMENSIONS ARE IN INCHES.
TOLERANCES
1 PLACE DECIMALS ± .1
2 PLACE DECIMALS ± .03
3 PLACE DECIMALS ± .010
ANGLE ± .5°
FRACTIONAL ± 1/16"
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SUPERSEDES PART NO.	-	

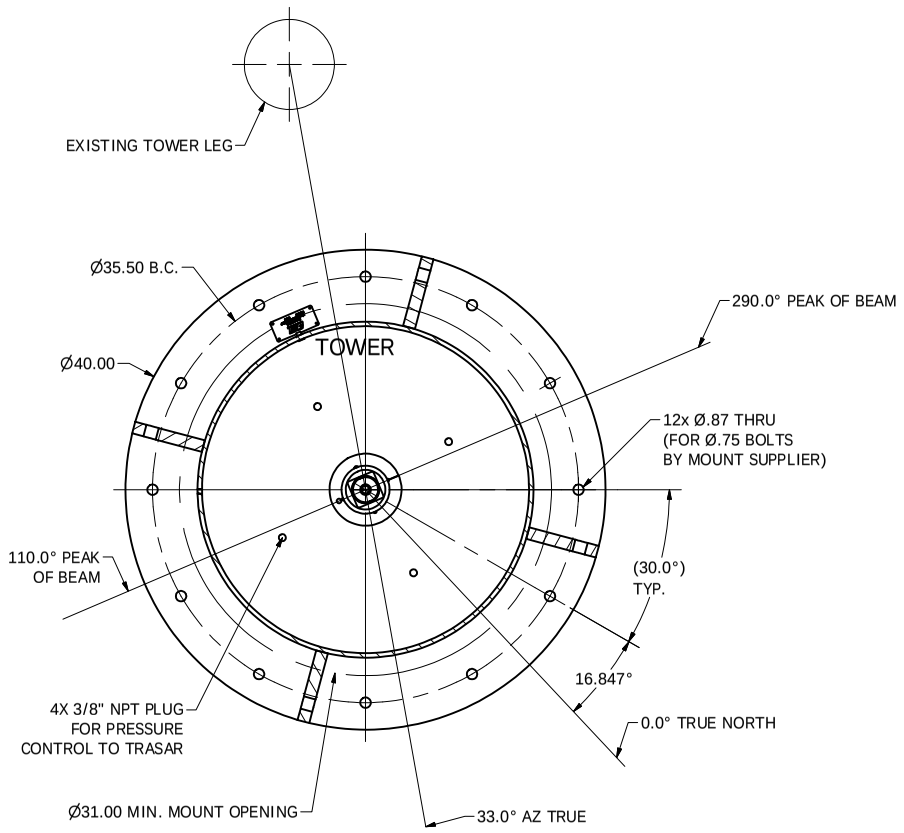
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PARAMETERS MECHANICAL
21226A - VIRGINIA BEACH, VA - CH.7

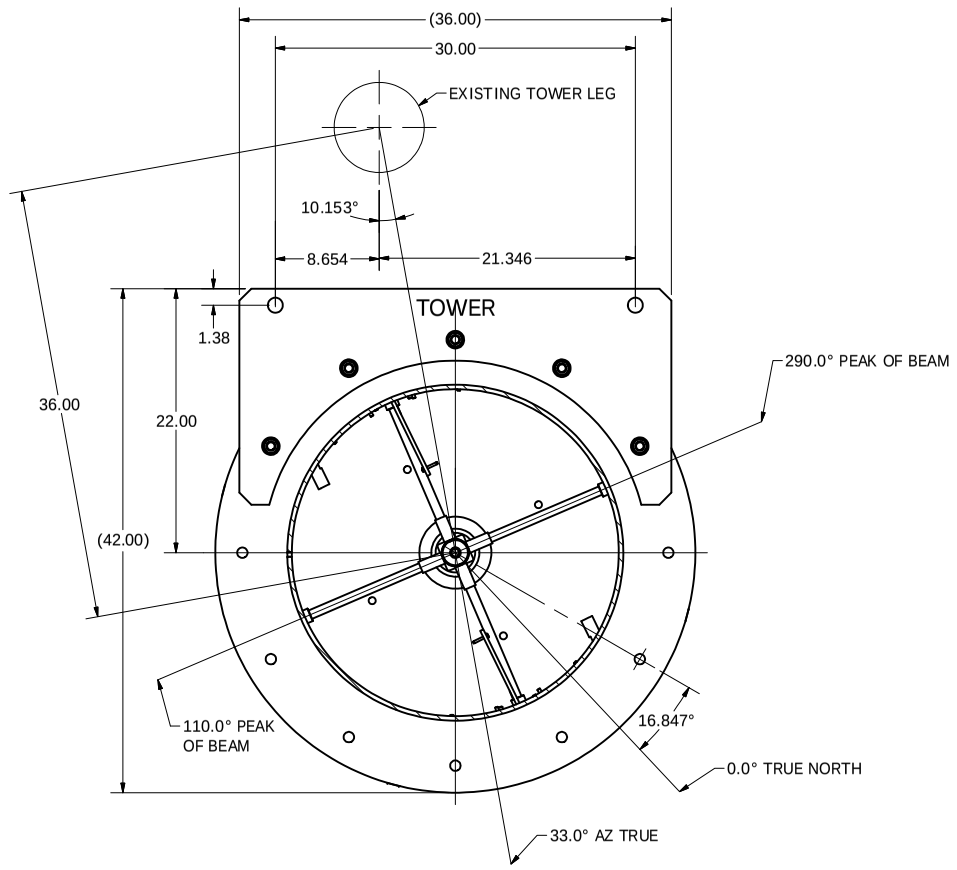
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WEIGHT: LB.

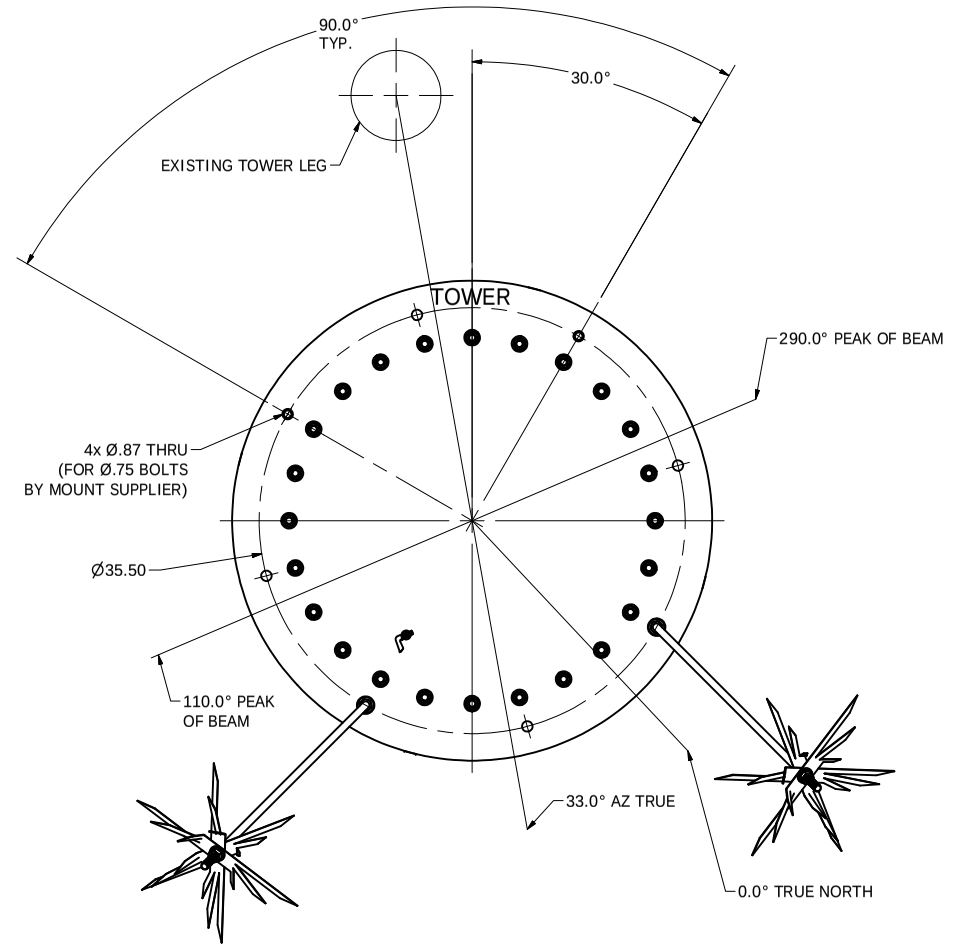
REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	REVISED MOUNTING LOCATION, WAS FACE MOUNTED	8/1/2009	K.SCHARP



TOP VIEW OF BOTTOM PLATE
(1.50 THICK)



TOP VIEW OF CENTER PLATES
(.75 THICK)



TOP VIEW OF TOP PLATE
(.75 THICK)
NO MOUNT REQUIRED
FOR TOP PLATE
CENTER PLATES
REMOVED FOR CLARITY

CERTIFIED STEEL FABRICATOR

SPECIFICATIONS		
MFG	INSPECTION	TEST
—	—	—
—	—	—

THIRD ANGLE PROJECTION

FINISH — — ALL SURFACES — —

MATERIAL — — — —

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES.
TOLERANCES
1 PLACE DECIMALS ± .1
2 PLACE DECIMALS ± .03
3 PLACE DECIMALS ± .010
ANGLE ± .5°
FRACTIONAL ± 1/16"
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PARAMETERS MECHANICAL
21226A - VIRGINIA BEACH, VA - CH 7

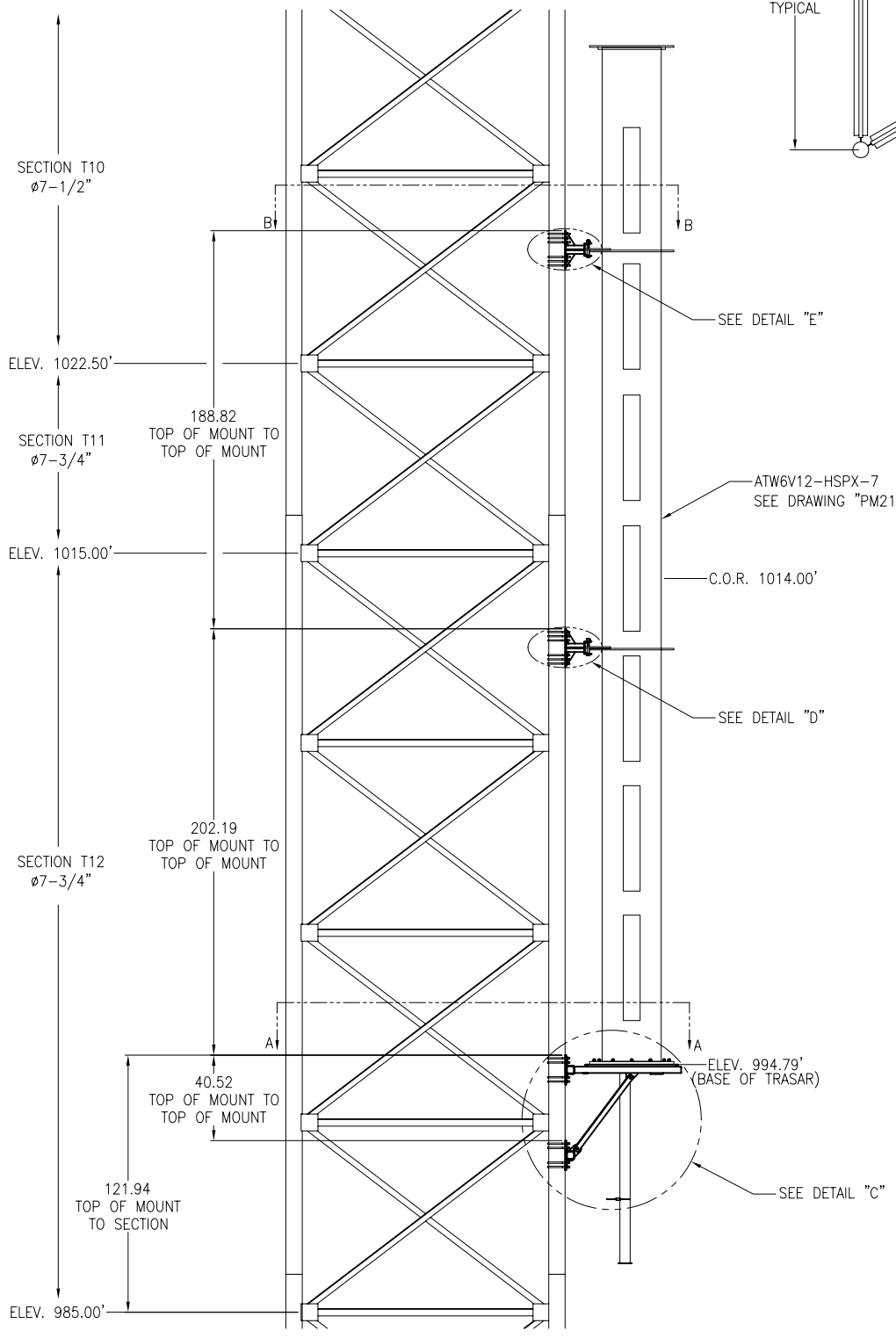
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SCALE 1 : 4 | FILE NO. PM21226A-1.4.DWG | SHEET 4 OF 4

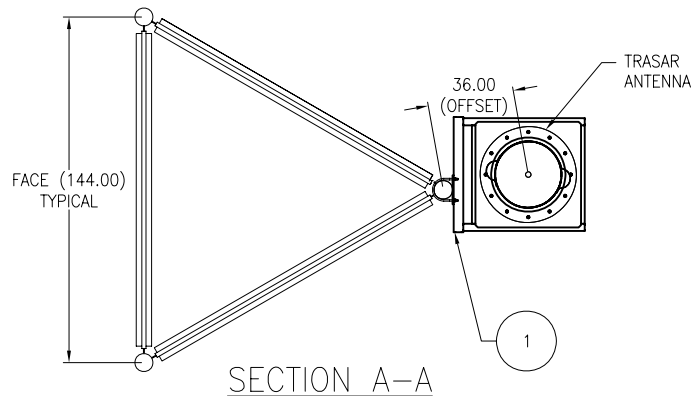
NOTES: (UNLESS OTHERWISE SPECIFIED)
1. REMOVE ALL BURRS AND SHARP EDGES FROM PART.
2. INTERPRET DRAWING PER ASME Y14.5M–1994.
3. USE TOLERANCES SPECIFIED IN TOLERANCE BLOCK UNLESS OTHERWISE NOTED.

SPECIAL NOTES:
PLACEMENT OF ANTENNA & MOUNTS WAS DETERMINED USING INFORMATION PROVIDED BY THE CUSTOMER. GENERAL TOWER INFORMATION WAS PROVIDED BY KLINE TOWERS INC.; CONTRACT No. 4044, DATED FEB. 21, 2000. TYPICAL TOWER SECTION DETAILS WERE PROVIDED BY TOWER CONSULTANTS, INC.; PROJECT No. 8.018.010, DATED MAY 12, 2009.

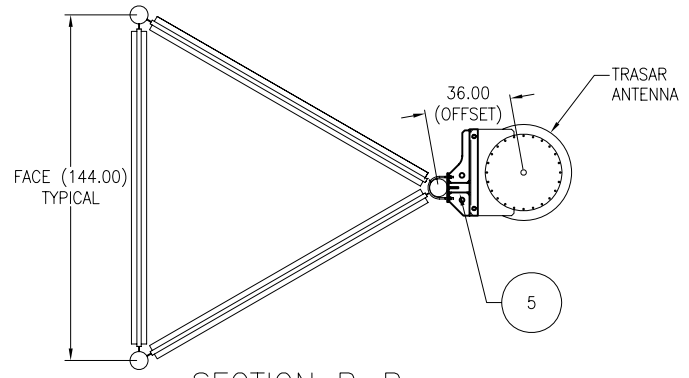
ERI DOES NOT WARRANT FIT–UP INTERFERENCE WITH ANY EXISTING FEATURES THAT WERE NOT SPECIFIED WITHIN THE TOWER INFORMATION PROVIDED.



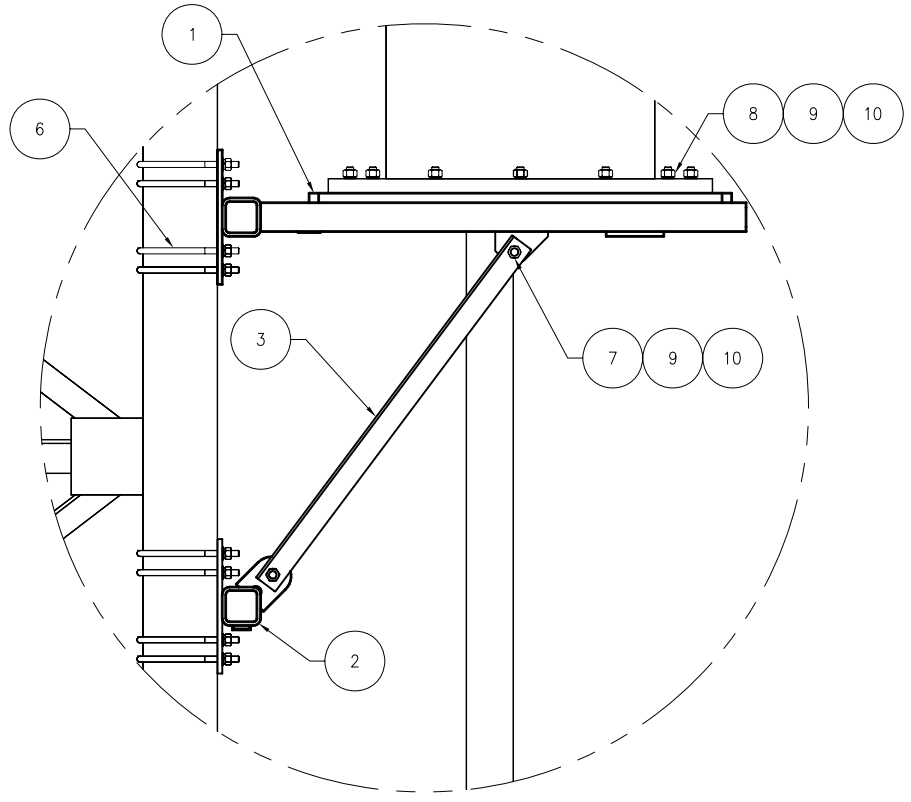
SIDE VIEW
SCALE=1:40
TOWER HARDWARE NOT SHOWN



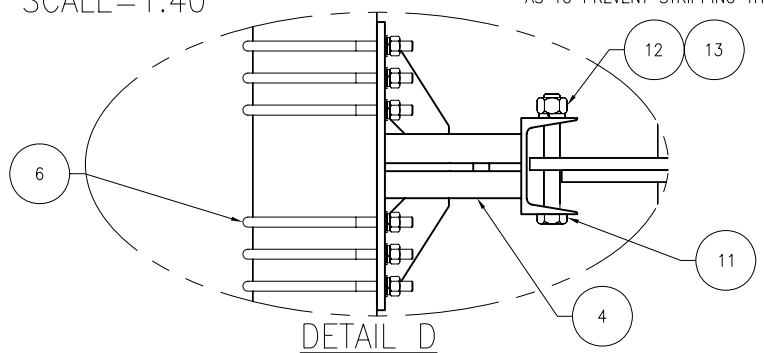
SECTION A–A
BOTTOM MOUNT
SCALE=1:40



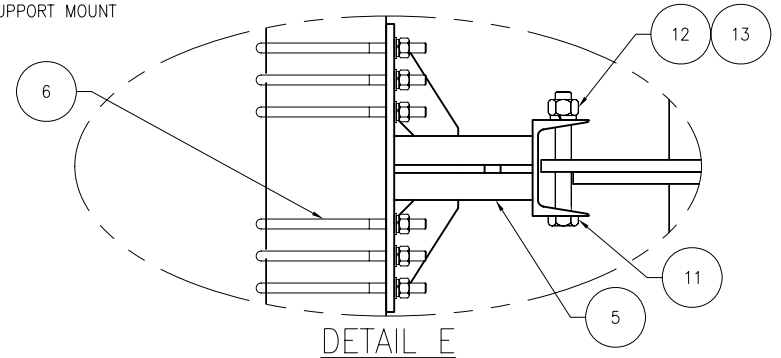
SECTION B–B
TOP SUPPORT MOUNT
SCALE=1:40



DETAIL C
SCALE=1:10



DETAIL D
SCALE=1:8
BOTTOM SUPPORT MOUNT



DETAIL E
SCALE=1:8
TOP SUPPORT MOUNT

STANDARD BOLTED CONNECTION NOTES:
1. IT IS ERI'S INTENTION THAT A NUT LOCKING DEVICE BE PROVIDED ON ALL BOLTED CONNECTIONS, UNLESS OTHERWISE SPECIFIED.

2 FLAT WASHERS ARE NOT REQUIRED ON CONNECTIONS WITH STANDARD HOLES, BUT MAY BE PROVIDED AND INSTALLED TO ACCOUNT FOR BOLT ASSEMBLY TOLERANCES TO PREVENT NUT JAMMING IN CASE THE BOLT SHANK PROTRUDES OUTSIDE OF THE CONNECTED PLIES. ASTM F436 FLAT WASHERS ARE REQUIRED FOR ALL CONNECTIONS WITH OVERSIZED OR SHORTSLOTTED HOLES. STRUCTURAL STEEL GRADE PLATE WASHERS OR A CONTINUOUS BAR NOT LESS THAN 5/16" THICK SHALL BE USED FOR ALL CONNECTIONS WITH LONG–SLOTTED HOLES.

3. UNLESS OTHERWISE NOTED, ALL BOLTED CONNECTIONS SHALL INITIALLY BE BROUGHT TO A SNUG–TIGHT CONDITION WHERE JOINT TIGHTNESS IS ATTAINED WITH A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER USING AN ORDINARY SPUD WRENCH TO BRING THE PLIES INTO FIRM CONTACT. A SYSTEMATIC APPROACH SHALL BE USED TO BRING THE JOINT INTO A SNUG–TIGHT CONDITION STARTING WITH THE MOST RIGID PART OF THE JOINT AND PROCEEDING TOWARD THE FREE EDGES.

4. APPLY AN ADDITIONAL 1/3 TURN TO ALL BOLTED CONNECTIONS FOR FINAL TIGHTENING, UNLESS OTHERWISE NOTED. FINAL TIGHTENING OF ALL BOLTS SHOULD BE COMPLETED AFTER FINAL CONSTRUCTION OF THE STRUCTURE/ASSEMBLY. PLEASE NOTE, SPECIAL ATTENTION SHALL BE GIVEN TO TIGHTENING OF 1/2"–DIAMETER A325 BOLTS, U–BOLTS, AND THREADED RODS AS TO PREVENT STRIPPING THE THREADS FROM OVER–TIGHTENING.

ASTM A325 BOLTS	
BOLT DIAMETER	SOCKET SIZE
1/2"	7/8"
5/8"	1-1/16"
3/4"	1-1/4"
7/8"	1-7/16"
1"	1-5/8"
1-1/8"	1-13/16"
1-1/4"	2"
1-3/8"	2-3/16"
1-1/2"	2-3/8"

QTY.	UM	PART NO.	DESCRIPTION	ITEM NO.
			PARTS LIST	
4	EA	NU1608GA	1"–8 GALV. HEX NUT	13
4	EA	WL16GA	1" GALV. LOCK WASHER	12
4	EA	SC1608H0750GA	1"–8 x 7–1/2" GALV. HEX HEAD BOLT	11
16	EA	NU1210GA	3/4"–10 GALV. HEX NUT	10
16	EA	WL12GA	3/4" GALV. LOCK WASHER	9
12	EA	SC1210H0375GA	3/4"–10 x 3–3/4" GALV. HEX HEAD BOLT	8
4	EA	SC1210H0175GA	3/4"–10 x 1–3/4" GALV. HEX HEAD BOLT	7
20	EA	UB1011–0887GA	5/8"–11 X 8–7/8" ℄ TO ℄ GALV. U–BOLT, W/NUT,LW&FW	6
1	EA	21226H–SW2	SUPPORT MOUNT WELDMENT #2 (~122 bs)	5
1	EA	21226H–SW1	SUPPORT MOUNT WELDMENT #1 (~121 lbs)	4
2	EA	21226H–KM1	KICKER ANGLE (~16.0 lbs/each)	3
1	EA	21226H–KW1	KICKER MOUNT WELDMENT (~102 lbs)	2
1	EA	21226H–BW1	BOTTOM MOUNT WELDMENT (~481 lbs)	1

MFG PROCESSES	INSPECTION PROCEDURES	TEST PROCEDURES
–	–	–
–	–	–

THIRD ANGLE PROJECTION

FINISH: –
ALL SURFACES
MATERIAL: AS NOTED

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES.
TOLERANCES
1 PLACE DECIMALS ± .100
2 PLACE DECIMALS ± .030
3 PLACE DECIMALS ± .010
ANGLE ± .5°
UNLESS OTHERWISE SPECIFIED

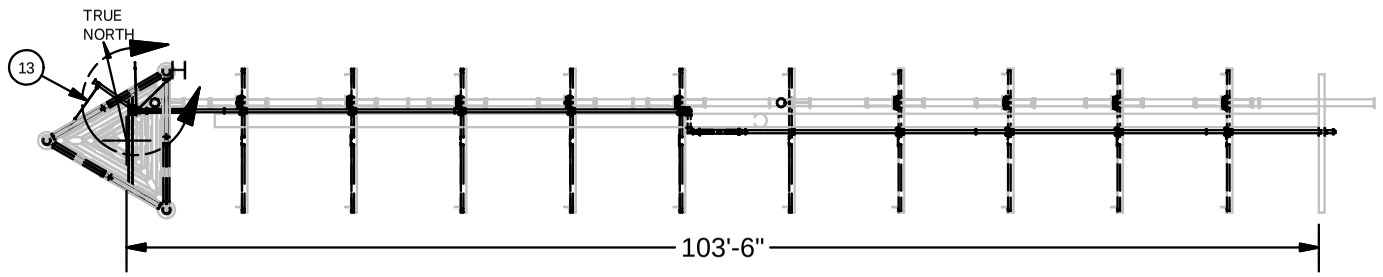
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ENG.	JMR	08/10/2009
MANUF.		
SUPERSEDES DWG.		

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CUSTOM TRASAR MOUNT INSTALLATION DETAILS
JOB #21226H/1 – WHRE, VIRGINIA BEACH, VA – CH. 7

SIZE	CAGE CODE	DWG NO.	REV
D	0ZNS1	21226H–A1	–
SCALE 1:40 (OR AS NOTED)	FILE NO. 21226H–A1	SHEET 1 OF 1	

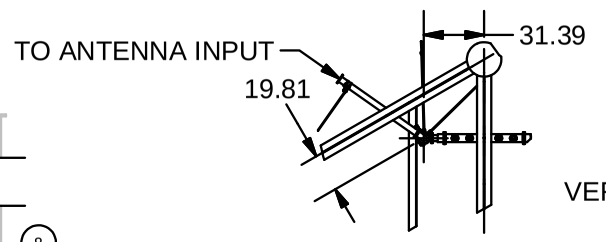


SYSTEM NOTES:

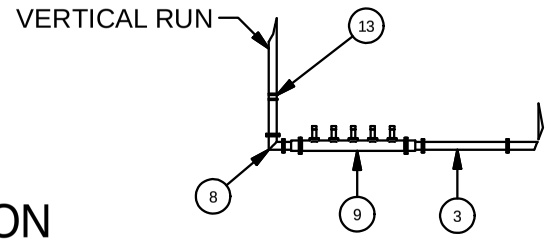
1. TRANSMISSION LINE LAYOUT IS INTENDED TO PROVIDE ROUTING AND SUPPORT GUIDANCE TO FACILITATE PROPER INSTALLATION AND TO DEVELOP THE TRANSMISSION LINE BILL OF MATERIALS BASED ON CUSTOMER FURNISHED INFORMATION. ANY ADDITIONAL SUPPORT MATERIALS REQUIRED TO ADAPT TO THE TOWER OR BRIDGE, OR ANY ADDITIONAL DRILLING OR HOLE PUNCHING TO ATTACH THE ERI SUPPLIED MATERIALS, WILL BE SUPPLIED BY OTHERS UNLESS SPECIFICALLY INCLUDED BY CONTRACT IN ERI's SCOPE OF WORK.
2. THE TRANSMISSION LAYOUT WILL PROVIDE APPROXIMATELY 6' OF LINE INTO THE BUILDING, PORT CONSTRUCTION WILL BE THE RESPONSIBILITY OF THE INSTALLER.
3. TRANSMISSION LINE MUST BE INITIALLY PURGED AND THEN MAINTAINED AT A POSITIVE 3-5 PSIG DRY GAS PRESSURE.
4. SYSTEM IS TUNED FOR: Ch 7

△5 TOWER ENTRANCE TO HAVE 6" RADIAL CLEARANCE TO EXISTING TOWER MEMBERS.
△2 1st VERTICAL SPRING HANGER MIN DISTANCE OF 9'
△1 VERTICAL HANGER TO HANGER APPROX 10', AVG 1 HANGER PER 10' OF VERTICAL LINE

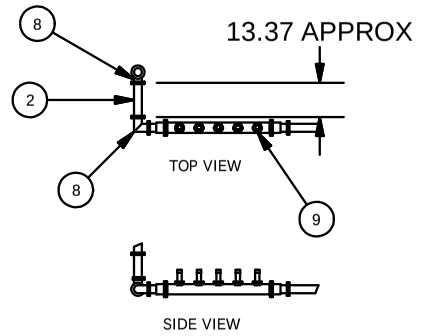
REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED
			DHS



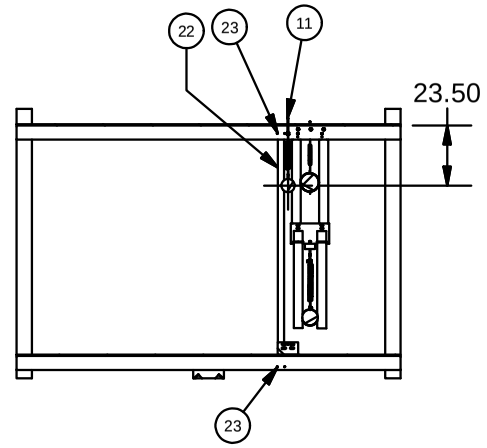
DETAIL H
VERTICAL
RUN LOCATION
SCALE 1 / 100



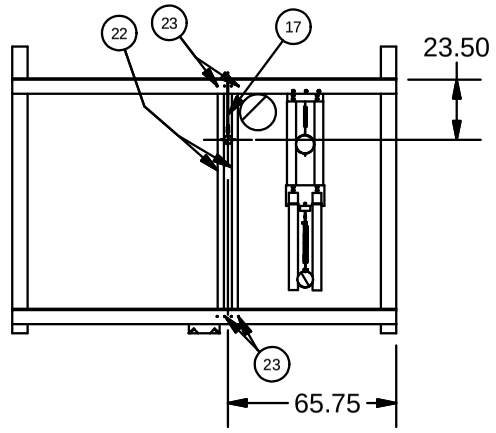
DETAIL D
TOWER ENTRANCE
SCALE 1 / 75



DETAIL C
BRIDGE TRANSITION
SCALE 1 / 75



SECTION B-B
TYP 5X SCALE 1 / 75



SECTION A-A
TYP. 5X SCALE 1 / 75

ITEM	ITEM QTY	PART NUMBER	DESCRIPTION	LENGTH
23	26	UB0616-0287GA	3/8-16 x 2-7/8" C-C GALV. UBOLT W/ HARDWARE	
22	13	PLP0200-0040PVCGR	2" SCH 40 GREY PVC PIPE	8 ft
21	3	RLA001-00KIT	VERTICAL SPRING HANGER ADAPTER KIT W/ HARDWARE	
20	2	BUTTON KIT	EXTRA VERTICAL SPRING HANGER SPACER BUTTON KIT	
19	3	RLA300-21	3-1/8" EXTRA FLANGE KIT	
18	2	RLA300-50	3-1/8" END CAP TO SEAL LINE	
17	5	RLA300-17SP	3-1/8" FIXED HANGER, SINGLE POINT	
16	1	RLA350-16	3-1/8" 50 OHM, HEAVY DUTY GAS BARRIER	
15	2	RLA300-15	3-1/8" WALL FEED THRU PLATE	
14	1	RLA400-14	4-1/16" LATERAL BRACE	
13	2	RLA300-14	3-1/8" LATERAL BRACE KIT	
12	3	RLA300-13	3-1/8" RIGID HANGER	
11	5	RLA300-12SP	3-1/8" HORIZONTAL SINGLE PT. SPRING HANGER	
10	94	RLA300-11-H	3-1/8" VERTICAL SPRING HANGER	
9	3	CU305-OHV	3-1/8", 50 OHM VHF FINE MATCHER	
8	5	ACX350-10SE-2	3-1/8" 50 OHM, 90 ELBOW, REINFORCED	
7	1	MACX350A-20	MACXLine 3-1/8", 50 OHM. CUSTOMER SPECIFIED SECTION 10'-20'	109.624 in
6	1	MACX350A-20	MACXLine 3-1/8", 50 OHM. CUSTOMER SPECIFIED SECTION 10'-20'	132.205 in
5	1	MACX350A-5	3-1/8", 50 OHM. CUSTOMER SPECIFIED SECTION 6"-60"	49.523 in
4	1	MACX350A-5	3-1/8", 50 OHM. CUSTOMER SPECIFIED SECTION 6"-60"	9.624 in
3	1	MACX350A-5	3-1/8", 50 OHM. CUSTOMER SPECIFIED SECTION 6"-60"	33.073 in
2	1	MACX350A-5	3-1/8", 50 OHM. CUSTOMER SPECIFIED SECTION 6"-60"	13.374 in
1	52	MACX350A-1	3-1/8", 50 OHM, 20' SECTION	20'

Parts List

SPECIFICATIONS		
MFG	INSPECTION	TEST

THIRD ANGLE PROJECTION

FINISH	MATERIAL:	UNLESS OTHERWISE SPECIFIED. ALL DIMENSION ARE IN INCHES. TOLERANCES
ALL SURFACES		1 PLACE DECIMALS ± .030 2 PLACE DECIMALS ± .010 3 PLACE DECIMALS ± .003 ANGLE ± .5' UNLESS OTHERWISE SPECIFIED

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DRAWN	JWebber	12/10/2008
DRAFT.		
DESIGN MGR.	GH	12/15/2008
ENG.	DHS	12/15/2008
MANUF.		
SUPERSEDES DWG.:		

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MACX350-7VVA SYSTEM LAYOUT
TRINITY BROADCASTING, WHRE Ch 7 VIRGINIA BEACH
Job # 21226A/101

SIZE	CAGE CODE	DWG. NO.	REV
B	OZNS1	MACX350-7VVA	

SCALE	FILE NO.	SHEET
NTS	MACX350-7VVA.idw	1 of 1

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